

When traveling... watch out for **mosquitoes!**

- A Dengue Cluster in Maricopa -

Summarized by
Tammy Escarzaga RN, BSN
Nurse Epidemiologist
Maricopa County Department of Public Health
Office of Epidemiology and Data Services

Dengue

- **Dengue fever & Dengue hemorrhagic fever (DHF)** are
 - Acute **febrile** diseases,
 - Found in the tropics,
 - Spread by mosquitoes

Serotypes

- Caused by one of four closely related virus serotypes of the genus *Flavivirus*, family *Flaviviridae*,
- Each serotype is sufficiently different so that
 - There is no cross-protection
 - Epidemics can be caused by multiple serotypes (hyperendemicity) can occur.
 - sequential infection increases risk of **DHF** and **shock**

Dengue Fever Symptoms

- **Sudden** onset of **fever**
- **Severe** headache, muscle and joint **pains**
- **Rashes**: bright red petechiae
- **Gastritis** with some combination of associated abdominal pain, **nausea**, **vomiting** or **diarrhea**.
- Mild dengue cases can be misdiagnosed as flu

DHF Symptoms

- **Fever** can be higher than Dengue fever cases.
- **Hemorrhagic** tendency
- **Thrombocytopenia** (<100,000 platelets per mm³)
- **Leukopenia**
- Small proportion of cases lead to Dengue shock syndrome (**DSS**) which has a high mortality rate

Dengue Shock Syndrome

DSS is defined as DHF plus:

- Weak **rapid** pulse,
- Narrow **pulse pressure**
- **Hypotension** for age;
- Cold, clammy skin and restlessness.

THIS IS LIFE THREATENING

The Mosquito

- Dengue is usually transmitted to humans by the *Aedes aegypti* mosquito, a domestic, day-biting mosquito that prefers to feed on humans.
- However, sometimes, other *Aedes* such as *A. albopictus* are the culprits.

Aedes Aegypti



The Cluster:

- **Vague** information is received by Community Health Nurses (CHN) @ MCDPH
- Local physician reports:
 - Unknown number of missionaries returning ill from abroad.
 - **Several** in unknown hospitals
 - Illness may be **dengue**

We Get Lucky!

Calls to several hospitals:

- One Infection Control Practitioner (ICP) knows of an individual admitted with Dengue after return from the **Dominican Republic**.
- Follow-up call to first patient and second patients
- Contacted trip coordinator

Case 1

- Symptoms: headaches, severe back pain, fever, rash, chills, leukopenia, and tarry stools.
- Patient remembers **mosquito bites** during the day.
- She received Yellow fever and Typhoid fever vaccinations, **no Malaria prophylaxis**.

Case 2

- **Onset** was the day after she returned from the trip.
- Symptoms: fever (max-**105.0**), N/V, dehydration and fatigue.
- Patient received Yellow fever, Typhoid, Hepatitis vaccinations and Malaria prophylaxis

Interview with the coordinator

- **Eight** individuals had gone on this trip.
- 2 males, 6 females, ages 28-73
- **Interviewed all** to assess:
 - History & degree of their **illness**,
 - time of **onset**, and
 - determine follow up **needs**.

Cases 3 through 8

- **Conducted** patient interviews
- Lab samples were collected from all 8 pts and sent to **ASHL**.
- Samples were then forwarded to **CDC**.

Diagnosis and Public Health Threat

- Serologic tests showed all eight (8) had dengue.
- They were all **viremic** upon return, posing a potential threat of spread of disease if exposed to the right vector.

CDC Results (order random)

- 1:163,840
- 1:40,960
- 1:640
- 1:655,360
- 1:40,960
- Type 1

Specific Facts

- $N = 8$
- 8 with Dengue, 100%
- 4 were hospitalized, 50%
- 2 developed DHF, 25%%
- 8 fully recovered, 100%

Education provided in response to needs assessed

- Education on **current threats** in the area.
- Education of prophylactics appropriate to **travel** area (refer to CDC travel guide).
- Education on the use of **repellant**.
- Education about **decreasing risk factors**, (i.e. long sleeves, screens, nets, & treating stagnant water.)

Lessons learned:

- Dengue suspected because of **Symptomatology** and **epidemiological information** related to the country in which the travel took place.
- Importance of **limiting the exposure** of viremic patients to possible vectors
- **Importance of education** of traveling public to prevent exposures abroad

Thank You !!!

- Other References:

- www.who.int/mediacentre/factsheets
- www.cdc.gov/ncidod/dvbid/dengue/facts.htm